



# Applied Systems Thinking

*Use the Power of Structure to Create Lasting Change*

**From the AST Library  
Practice  
Article 1**

**Six Steps to Thinking Systemically  
By Michael Goodman and Richard Karash**

This article introduces the steps in conducting a systemic analysis and applies them to an actual business case.



## SIX STEPS TO THINKING SYSTEMICALLY

BY MICHAEL GOODMAN AND RICHARD KARASH

Bijou Bottling Company is a fictitious beverage bottler with an all too real problem: chronic late shipments. Its customers—major chain retailers—are looking for orders shipped complete and on time. About five years ago, in a U.S. region covering about six states, this problem reached crisis proportions...

In the face of day-to-day pressures, groups often leap to solutions after only a modest amount of brainstorming. A systemic approach, however, provides a structured problemsolving process for digging deeper into our most vexing problems.

To get a sense for how systems thinking can be used for problem identification, problem solving, and solution testing, we have outlined a six-step process. To use this process on a problem in your workplace, try the worksheet on the last page of this article.

### 1. Tell the Story

The starting point for a systems thinking analysis is to get your head above water enough to start *thinking* about the problem instead of just acting on it. An effective way to do this is to gather together all of the impor-

tant players in the situation and have each one describe the problem from his or her point of view.

At Bijou Bottling Company, the problem was usually a customer complaint: "Where were the 40 cases of 2-litre Baseball tie-in product that were ordered last week?!" Somehow Bijou would get the goods there on time, whatever it took—including airshipping heavy soda in glass bottles at enormous costs. But this crisis management led to a culture where people built their careers on coming in at the 11th hour and turning around a customer complaint.

### 2. Draw "Behavior Over Time" Graphs

In the storytelling stage, most of the energy is focused on the pressures of the current moment. When we move to "Behavior Over Time" (BOT) graphs, however, we begin to connect the present to the past and move from seeing events to recognizing patterns over time.

Draw only one variable per graph on a Post-it™ note so it can be easily moved around in the steps that follow. The time frame should span from

past up to the present—but it can also include future projections (see "Bijou Over Time").

### 3. Create a Focusing Statement

At this point, you want to create a statement that will help channel energy during the rest of the process. This statement may involve a picture of what people want, or a question about why certain problems are occurring. At Bijou, for example, the focusing statement was: "We're pretty good at solving each problem as it arises. But why are these problems recurring with greater frequency and intensity? What is causing them?"

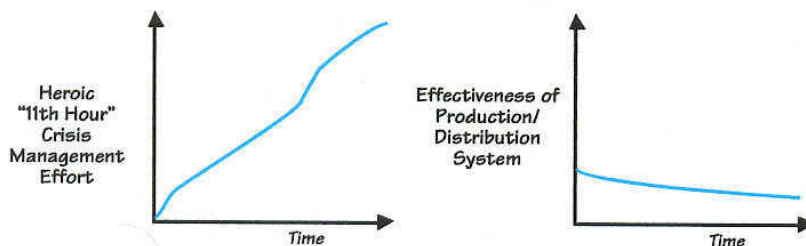
### 4. Identify the Structure

You now want to describe the systemic structures that are creating the behavior patterns you identified. The systems archetypes are an easy way to begin building a theory of why and how things are happening (see "Systems Archetypes at a Glance," V3N4).

Begin by reviewing the story, graphs, and focusing statement to see if they follow the storyline of an archetype. If so, draw the loop diagram for that archetype, place the Post-its of the variables in the diagram, and move them around on a flip chart until you have a diagram that seems to capture what is going on.

The group at Bijou decided that their problem matched the "Shifting the Burden" storyline, in which a problem is "solved" by applying a short-term solution that takes attention away from more fundamental improvements. They identified a balancing loop that described how customer problems were solved with heroic "11th-Hour" efforts (the symptomatic solution) at the expense of improvement and redesign of the

#### BIJOU OVER TIME



At Bijou, crisis management efforts had increased over time, while the effectiveness of the production/distribution system had decreased.



"SIX STEPS" WORKSHEET

**1. Tell the Story:**

**2. Draw Graphs:**

**3. Create a Focusing Statement:**

**4. Identify the Structure:**

How does the structure explain the observed behavior?

**5. Going Deeper™ into the Issues:**

- Purpose:
- Mental Models:
- Larger System:
- Personal Role:

**6. Plan an Intervention:**

How is the planned intervention consistent with the structure as described above?